of the word 'International' to the title, to avoid the obvious danger of misconception which was inherent in title at the time I became associated with the body. In regard to the references to criticisms in *Truth* of the Faculty of Sciences and in your journal some years ago, of The College of Pestology, allow me to say that I am unaware of any such statements, having only joined these bodies early this year."

The Deterioration of Paper on Ageing

THE article on "The Deterioration of Paper on Ageing", which appeared in NATURE of Aug. 27, p. 320, has occasioned some comments from Mr. James Strachan, who is well known in paper-making circles. Mr. Strachan's communication is of particular interest in that it refers to the paper on which NATURE itself is printed. Before 1882 this contained a fairly large proportion of rag, but was replaced from about 1892 onwards by a mixture of esparto and wood. Mr. Strachan points out that the volumes containing rag have a marked tendency to turn brown at the edges of the sheet, whilst the issues for 1892 and 1893 are entirely free from this sign of deterioration. The latter have in fact, even now, as great a bursting-, tensile- and folding-strength as the paper used at the present time. On first consideration these facts appear to make a case for paper containing esparto as distinct from rag. As emphasised in the article, however, the methods of manufacture and storage must also play important parts, and in connexion with the former Mr. Strachan emphasises the formation of hydrochloric acid by the inter-reaction of aluminium sulphate and residual chlorides. So far as the latter is concerned, it may be stated that two sets examined by the writer of the article show distinct signs of browning at the edges even after 1893, and in one case it is extremely difficult to distinguish in this way the rag paper from that containing esparto; these happen to be volumes which are very frequently consulted. Those who possess long runs of NATURE may find some interest in making the comparison for themselves.

"A History of Fire and Flame"

IN reference to the review of this book which appeared in NATURE for October 15 (p. 562), Dr. O. C. de C. Ellis writes to say that it was impossible for him to include the many thousands of references that he had at hand. In doubtful controversies he had had regard to inherent probability, and often, in the absence of definite information, weight was given to accumulations of evidential suggestion. Dr. Ellis considers that, though we do not know that the alchemists experimented with oxygen, we can understand many otherwise incomprehensible passages, in no way interrelated, if we believe that they did. As to the tentative identification of Boyle with "Eirenæus Philalethes", Dr. Ellis still thinks that it is inherently possible that Boyle may have issued treatises under a pseudonym. Upon the material nature of phlogiston, he says that Cavendish and his contemporaries thought at first that hydrogen was phlogiston, and quotes the authority of Stillman for the statement that Stahl approved Becher's characterisation of phlogiston as of an "earthy nature". Dr. Ellis's hypothesis that the alchemists experimented with oxygen is certainly an interesting one, but we feel that more and weightier evidence is required to substantiate it. The problem of the identity of "Eirenæus Philalethes" is extremely obscure, but he was not the same as Eugenius Philalethes (Thomas Vaughan), with whom Dr. Ellis has apparently confused him. Bibliographical references on this point are to be found in Ferguson's "Bibliotheca Chemica", vol. 2, 190–7 (1906).

New International Psychological Journal

Character and Personality is the title of the most recent addition to the number of psychological journals, and it is unique in that it is to appear in English and in German (London: George Allen and Unwin, Ltd., 2*s*.). In the first number, Prof. W. McDougall has an article on the meaning of the title words. He points out the confusion in meaning attached to the word character, and discusses the more common usages. The problem has for the most part been neglected by psychologists. There is also a difference between the English and German use, the former tending to look upon it as representing the single distinctive feature of an individual, the latter as the sum total of those features, properties, or qualities of an individual organism which are peculiar to it and serve to distinguish it from other individuals. Closely allied to, and in popular use frequently indistinguishable from, character is temperament; Prof. McDougall has for years insisted on the use of temperament for the sum total of the effects on the mind of the functioning of the bodily processes, a use which is in accordance with the tradition of centuries (although that does not justify the generalisations of some enthusiasts to the effect that all mental life is entirely dependent on such processes). Workers in applied psychology have been, however, almost forced to use temperament for emotional organisation, but there is no doubt that it would be useful if we did not use character, personality, and temperament as synonyms, but made clear and scientific the implied differentiation; and for this, McDougall's article is excellent.

Physics in Psychical Research

IN the *Hibbert Journal* for October, Prof. D. F. Fraser-Harris contributes an article on what he calls the new era in psychic research. It is an account of the recent experiments with the medium, Rudi Schneider, and a summary of the results which are said to have been obtained in Paris when infra-red rays were interrupted through some agency which appeared to be connected with the medium. Prof. Fraser-Harris, in his description of some of the more startling phenomena that he has himself observed, does not seem to have cherished many doubts as to the 'super-normal' character of the occurrences. He states that there have never been suspicions of the medium himself when examined outside the latter's

home, although the facts are that the surreptitious freeing of one hand from the controllers was made the subject of heated controversy in 1924 and has been suggested many times since as the means whereby certain of the minor 'phenomena' were produced. Prof. Fraser-Harris concludes by the plea that these occurrences are worthy of scientific examination and that this demonstration of exteriorised energy opens up a new era in psychical research. He appreciates the difficulties both from the point of view of the physiologist and that of the physicist, but is of the opinion that the way is now open for the independent verification of the disputed phenomena. Certainly if the recent claims made by MM. Osty on behalf of the medium can be substantiated, then an important step forward has been made.

Life-Saving Appliances on Merchant Ships

THE Royal Society of Arts has several times given awards for inventions in connexion with life-boats and in 1878 it appointed a committee to consider marine life-saving apparatus. Its interest in nautical affairs is also shown by the Thomas Gray lectures, which were this year given by Capt. O. A. Barrand and Mr. G. A. Green on life-saving appliances on merchant ships, reports of which have now appeared (*J. Roy. Soc. Arts*, Sept. 16, 23, 30, Oct. 7). The lectures were divided into sections dealing with life-buoys and life-jackets, coastal life boats, ships' boats, boat stowage and buoyant apparatus. The credit for the design of the "Standard" life-jacket, we learn, belongs to certain officers of the Board of Trade, but jackets can be manufactured by anyone if permission is obtained. The best jackets are now of 'kapok', which when suitably packed has a buoyancy value of 3½ times that of cork. Kapok is the seed-hair of a plant growing in the East, but only Java kapok is permitted in life-jackets. The tests for jackets are stringent and the Standard jacket has to contain 24 oz. of the best Java kapok and to be capable of supporting 20 lb. of iron after floating in fresh water for 24 hours with 16½ lb. of iron attached. The loss of buoyancy of Java kapok has been shown to be only 10 per cent in thirty days' immersion.

Annual Weather Report

THE recently published annual volume of the *Weekly Weather Report* (London: H.M. Stationery Office) is the fifty-fourth annual summary of weather recorded at official weather stations or stations maintained by private individuals in co-operation with the Meteorological Office, in which the week is made the unit of time. Until recent years, summaries of individual weeks were printed within a short time after the conclusion of each week, but since that was discontinued, advantage has been taken of the opportunity thereby afforded of presenting a whole year's data in a form that should be extremely handy for the statistician who seeks to relate agricultural statistics of crops with the weather. The week has for long been held by many meteorologists to be the ideal unit of time in agricultural meteorology, and the *Weekly Weather Report* has always aimed at being the farmer's weather report. This explains why in this latest volume the period begins on March 1, 1931, afid ends on February 27, 1932, so as to cover a farmer's year. The main features of the weather of the whole year for any one of the twelve 'districts' into which the British Isles are divided are readily seen by the inspection of a few columns of figures, occupying only one-third of a page. Where the progress of events for a single place are of more interest, recourse has to be made to the weekly figures for the sixty individual representative stations, which are set out so that one page shows all the figures for one station only. In this particular volume the widespread incidence of abnormally cold and wet weather during the harvest period of 1931 over England is one of the most striking features; the general character of the phenomenon is shown by the weekly deviations of temperature and rainfall for English 'districts', and one can compare its severity at places so far apart as Durham and Jersey. The corresponding figures for Scotland and Ireland show the varying extent to which the northern parts of those countries escaped this visitation.

Radium in Great Britain

IN the Third Annual Report of the National Radium Trust and Radium Commission, 1931–1932 (H.M. Stationery Office. Price 9*d*. net), details are given of the purchases of radium by the Trust, and of the distribution of the supply by the Commission. We gather that the supply of national radium amounts to about 19 gm., excluding 4 gm. formerly comprising the 'bomb', now acquired by King Edward's Hospital Fund for London. The cost of this supply with the necessary containers has amounted to £217,937. It is noted that in spite of the stress laid by the Commission upon the necessity for the observance of the approved precautions for the safe custody of radium, avoidable losses have occurred at three of the national centres, which the Commission regards as resulting from breaches of the radium regulations. The reports deal only with administrative matters and no details of treatment are included.

Seeding of Frog-bit in Great Britain

MISS GLADYS V. HOARE writes from the Royal Holloway College, Egham, Surrey, that plants of frog-bit (*Hydrocharis Morsus-ranæ*) under observation in the Botany Garden of the College have recently set seed. This is worthy of note since the plant usually reproduces itself vegetatively by means of turions, and reproduction by seed has not been reported for Britain by such well-known authorities as Sir Joseph Hooker and Mrs. Arber. In fact, it is frequently stated that the fruit is rare in Great Britain. Mr. Wilmott of the Natural History Museum showed Miss Hoare four seeds sent to him by Miss Corfe from Glastonbury in 1926. Miss Hoare suggests a connexion between this seedling and the special condition of the summer weather, and would be glad to know whether any other naturalist has collected seeds this year.